6 Sidewalks, Curb Ramps, and Steps

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CHAPTER SIX:
SIDEWALKS, CURB RAMPS, AND STEPS

Sidewalks, curb ramps, and steps are paved areas for pedestrian traffic. In highway work, sidewalks are usually parallel to the roadway with occasional short lengths connecting the main walk to adjacent walks. Sidewalks are normally constructed only to replace existing sidewalks and are placed only where shown on the plans.

Curb ramps (Figure 6-1) are sloping sidewalks that allow wheelchairs to easily move from the sidewalk at curb height to the adjacent pavement at points of pedestrian street crossings. Steps are used to move pedestrian traffic from one elevation to another in a short distance. HMA sidewalks are rarely built today.

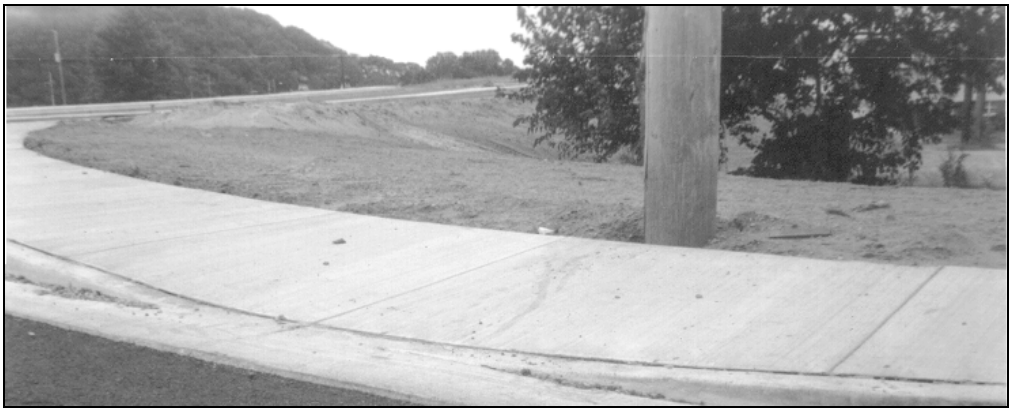

Figure 6-1. Sidewalk with Curb Ramp

This chapter will deal with the construction of concrete and HMA sidewalks, concrete curb ramps, and steps. Standard Sheets **604-SWCR-01**, **04**, **08**, & **09** for sidewalk, curb ramp, and step details should be reviewed.

GRADE PREPARATION

Excavation is simply made to the required depth and to a width that accommodates the forms and braces. The base is shaped and compacted to a firm, even surface and all soft and yielding material is required to be removed.

FORMS

Forms may be wood or metal and are required to extend for the full depth of the concrete. Forms are also required to be straight, free from warp, and strong enough to resist the pressure of the concrete without springing. A sufficient number of stakes and braces are used to maintain proper vertical and horizontal alignment until the forms are removed.

PLACING CONCRETE

The base is required to be thoroughly moistened before placing concrete. A dry base draws moisture from the fresh concrete and may cause a premature failure.

Class A concrete normally is used. Section **702** contains information on proportioning, mixing, and placing of the concrete.

FINISHING

The sidewalk surface is finished with a wooden float. No plastering of the surface is permitted. The final finish on curb ramps requires a rougher texture than the sidewalk for better traction and skid resistance. The texturing, usually achieved by coarse brooming, is required to be done transverse to the ramp slope. Curb ramps are required to have a running slope not exceeding 12:1 and a cross slope not exceeding 50:1.

All exposed edges are edged with a 1/4 in. radius edging tool.

JOINTS

The type and location of joints and the size of preformed joint filler required are included in the plans.

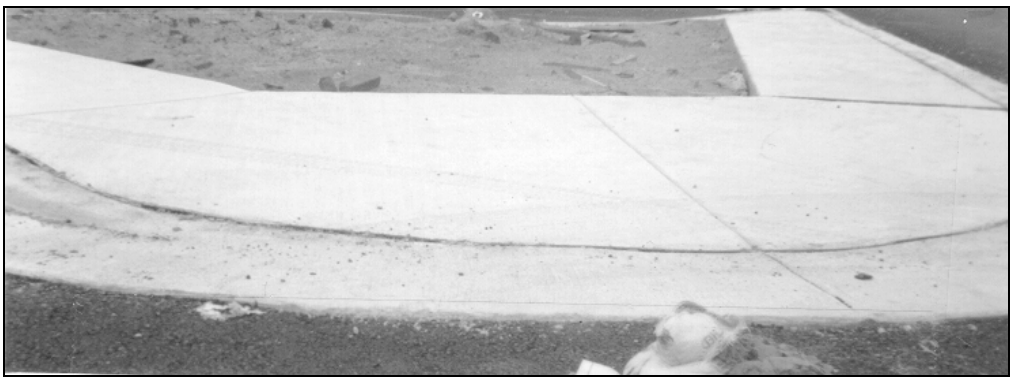

Figure 6-2. Contraction and Preformed Joints

Contraction joints (Figure 6-2) are formed with a 1/4 in. radius jointing tool. All other joints are formed with a 1/4 in. radius edging tool.

Preformed 1/2 in. joint filler is placed around all manholes, utility poles etc. that extend into or through the sidewalk. This material is also used where the sidewalk abuts a structure, such as a building or bridge. The preformed joint filler is required to extend for the full depth of the concrete and be flush with the surface of the adjacent concrete.

CURING

The concrete is required to be cured for at least 72 h. This is done by means of wet burlap mats, plastic sheeting, liquid membrane curing compound, or other approved methods. No pedestrian traffic is allowed on the concrete during the curing period.

CONCRETE STEPS

The construction requirements for concrete steps are the same as previously discussed for sidewalks. All exposed edges of the concrete steps are rounded to a 1/4 in. radius.

RECONSTRUCTED CONCRETE SIDEWALK

Where existing sidewalk is to be reconstructed, all disintegrated concrete, brick, stone, or other material is required to be completely removed and replaced with new concrete.

Unless otherwise specified, the reconstructed portion of the sidewalk is constructed to a minimum depth of 4 in. and to the width of the adjoining walk but not less than 48 in. from the face of the curb.

Before removal of the existing concrete, a straight saw cut is made with an approved power driven saw at the limits of the removal. If the adjacent sidewalk is damaged during the sawing operation, the sidewalk is replaced with no additional payment.

Unless otherwise directed, sidewalk is removed between tool marks and joints. Any adjacent curb that is deteriorated is also removed and replaced at the contract unit price for curb.

The new sidewalk joint pattern is required to be similar to that of the surrounding sidewalk. Sidewalk placed at drives is 6 in. thick or the same depth as the existing drive, whichever is greater.

RE-LAID SIDEWALK

If re-laying of concrete sidewalk is specified, then the work consists of removal and re-laying of concrete, stone slab, or brick sidewalk. Care should be taken not to damage the sections. Each section is to be laid on a bed of No. 23 or 24 sand at least 2 in. in depth. Damaged sections are required to be replaced.

HMA SIDEWALK

Grade preparation for HMA sidewalk is much the same as that for concrete sidewalk; however, the base is required to be constructed with compacted coarse aggregate as set forth in the plans.

The HMA mixture is placed in one or more courses as set out in the plans and each course is compacted with a hand operated or power roller. Inaccessible areas may be compacted with a hand tamper.

If the HMA surface is too open or sticky, the surface may be coated with No. 23 or 24 sand that is broomed over the surface, leaving no excess. This sand, however, is not paid for directly.

CONSTRUCTION AND INSPECTION PROCEDURES

Sidewalks are always built with smooth transitions to existing walks. There should never be a vertical lip left anywhere that a pedestrian may trip on. When constructing curb ramps, the maximum slopes shown in the standards are not exceeded.

When inspecting the various items, all dimensions are checked carefully, before the concrete is poured, to ensure that they meet the requirements of the plans and Specifications. Occasionally, Contractors form sidewalks with two-by-fours which are only 3-1/2 in. high and pour the walk that thickness. This practice is not acceptable.

The joints are required to be checked for the proper vertical depth and radius as well as the spacing of the different types.

On-site testing of materials is required to be done according to the Frequency Manual. All materials are checked to verify that they are approved for use. All required basis for use documents are obtained for the material records.

MEASUREMENT AND PAYMENT

Measurement and documentation of all items is required for payment on a daily basis. These measurements are required to be accurate enough for final payment so that additional measurements at a later date are not required. The accepted quantities of concrete sidewalk, curb ramps, and reconstructed & re-laid sidewalk are paid for at the contract unit price per square yard. HMA for sidewalk is paid for at the contract unit price per ton, complete in place. Bed course material is paid for at the contract unit price per ton. Joint material is paid for at the contract unit price per linear foot. Concrete steps are paid for at the contract unit price per cubic yard. The costs of excavation, backfill, expansion joint material, and necessary incidentals are included in the costs of the pay items.